



**IN THE MATTER OF  
United States of America  
Patent Application No.  
09/341,299 in the name of  
VERONICA ROBINSON**

**DECLARATION UNDER 37CFR1.132**

#15  
AKO  
7.31.02

I, **VERONICA TOWNSEND**, formerly **VERONICA ROBINSON**, of 11 McAlpine Retreat, Kinross, Western Australia, 6028, **AUSTRALIA**, hold the position of Managing Director with **LICEBUSTERS INTERNATIONAL R & D PTY LTD** of Unit 5, No. 1 Townsend Street, Malaga, Western Australia, 6090, **AUSTRALIA**, the Assignee of the above referenced application, and I give this evidence from company records and personal knowledge.

1. I hold a Diploma in Chemical Technology from West Bromwich Technical College, United Kingdom.
2. I am the inventor of the invention which is the subject of the claims of US Patent Application No. 09/341,299 ("The Application").
3. The invention which is the subject of the Application as defined in claims proposed at an interview with the Examiner on 24 January 2002 includes the feature of a carrier composition including a mixture of wax and an insect repellant, the insect repellant being present in an amount which is non-toxic to a person, but sufficient to treat and prevent infestation of lice and other parasitic insects on a person.
4. Attached hereto and marked Exhibit VT-1 is a copy of the Application as filed. On page 6, lines 25 to 30 of the Application it is stated that a suitable amount of pyrethrum for killing lice is 0.5 to 6.0% by volume of the total carrier composition. I confirm that this amount of pyrethrum is sufficient to treat and prevent infestations of lice and other parasitic insects on a person. I also confirm that the amount is non-toxic to a person.
5. Attached hereto and marked Exhibit VT-2 is a copy of an article dated August 1996 ("The Article") appearing in US publication "Happi". Happi is a magazine which is published monthly for people involved in the personal care, household, industrial and institutional fields. The article is entitled "Pyrethrum: A Safe and Effective Natural Insecticide".
6. The Article states on page 47, column 1, lines 17 to 27:

**"Pyrethrum production is expected to significantly increase during the next five years due to its proven effectiveness and safety record and also consumer preference for natural products.**

**Pyrethrum is a contact insecticide with a very good human and animal safety record. It is generally recognised to be one of the least toxic of all the natural domestic insecticides."**

7. **The Article discusses the safety and toxicity of pyrethrum in a passage on page 48, column 3, line 20 to page 49, column 1, line 3. This passage states that there is no clear evidence of chronic poisoning in humans over many years of manufacture and use. The passage also states that the US Environmental Protection Agency (EPA) has carried out a safety investigation into the use of pyrethrums using a natural pyrethrum extract containing 57.6% of pyrethrins. The passage states that pyrethrum extract has a low order of toxicity and is unlikely to cause skin and eye irritation or sensitivity and that:**

**"In fact, all tests to date indicate and support earlier views that insecticides containing pyrethrum extracts present very few risks to humans or animals".**

8. **In my view, the Article indicates that the use of pyrethrum in an amount within the range 0.5% to 6.0% by volume, being significantly less than amount of natural pyrethrum extract used in the EPA safety investigation referred to in paragraph 7 above, is non-toxic to a person.**
9. **In June 1997, I carried out tests to establish the effectiveness of pyrethrum when used in an amount within the range 0.5% to 6.0% by volume. The tests involved producing an insect repellant substrate attached to a garment to be worn by a person, the substrate including a mixture of wax and pyrethrum in an amount within the range 0.5% to 6.0% by volume and providing each child of a group of 26 children at my daughter's school with one of the garments. The tests also involved producing such garments with pyrethrum in amounts outside the range 0.5% to 6.0% by volume.**
10. **The testing indicated that the use of pyrethrum in an amount within the range 0.5% to 6.0% by volume is particularly effective in treating and preventing infestations of lice and other parasitic insects.**
11. **None of the children included in the tests experienced any adverse effects as a result of carrying out the test.**
12. **Garments including an insect repellant substrate having a mixture of wax and pyrethrum in an amount within the range 0.5% to 6.0% by volume ("the Garments") have been sold in the**

United States since 1998.

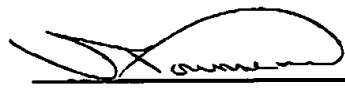
13. The Garments have been sold in Australia since 1997.
14. Attached hereto and marked Exhibit VT-3 is a copy of a label for a Garment and a copy of a letter from the Australian Therapeutic Goods Association (TGA) which indicates that approval has been given to use a label in relation to garments sold which claim that the Garment prevents infestation of lice.
15. Attached hereto and marked Exhibit VT-4 is a copy of a letter dated 8 June 1998 from Lea Hadley, principal of Tranby Primary School of Riverdale, Western Australia, in support of my claim that the Garments are effective in treating and preventing infestation of lice and other parasitic insects on a person and that an amount of pyrethrum in an amount within the range 0.5% to 6.0% is non-toxic to a person. I confirm that the headbands and cap inserts referred to in the letter include an insect repellent substrate having an amount of pyrethrum within the range 0.5% to 6.0% by total volume.
16. Attached hereto and marked Exhibit VT-5 is a copy of a letter from Chris Wells, pharmacist and proprietor of Scarborough Beach Pharmacy, Scarborough, Western Australia in support of my claim that the Garments are effective in treating and preventing infestation of lice and other parasitic insects on a person and that an amount of pyrethrum in an amount within the range 0.5% to 6.0% is non-toxic to a person. I confirm that the products referred to in the letter include an insect repellent substrate having an amount of pyrethrum within the range 0.5% to 6.0% by total volume.
17. Attached hereto and marked Exhibit VT-6 is a copy of a letter from Barry Tucker, Optometrist of Ballajura Optometrists, Ballajura, Western Australia, in support of my claim that the Garments are effective in treating and preventing infestation of lice and other parasitic insects on a person and that an amount of pyrethrum in an amount within the range 0.5% to 6.0% is non-toxic to a person. I confirm that the products referred to in the letter include an insect repellent substrate having an amount of pyrethrum within the range 0.5% to 6.0% by total volume.
18. Attached hereto and marked Exhibit VT-7 are copies of correspondence received from customers in support of my claim that the Garments are effective in treating and preventing infestation of lice and other parasitic insects on a person and that an amount of pyrethrum in an amount within the range 0.5% to 6.0% is non-toxic to a person. I confirm that the products referred to in the correspondence include an insect repellent substrate having an amount of pyrethrum within the range 0.5% to 6.0% by total volume.

19. Attached hereto and marked Exhibit VT-8 is a copy of an article appearing in an Australian Newspaper in support of my claim that the Garments are effective in treating and preventing infestation of lice and other parasitic insects on a person and that an amount of pyrethrum in an amount within the range 0.5% to 6.0% is non-toxic to a person. I confirm that the products referred to in the article include an insect repellent substrate having an amount of pyrethrum within the range 0.5% to 6.0% by total volume.
20. Attached hereto and marked Exhibit VT-9 is a copy of an article appearing in New Zealand Newspaper "Sunday Star-Times" in September 1998 in support of my claim that the Garments are effective in treating and preventing infestation of lice and other parasitic insects on a person and that an amount of pyrethrum in an amount within the range 0.5% to 6.0% is non-toxic to a person. I confirm that the products referred to in the article include an insect repellent substrate having an amount of pyrethrum within the range 0.5% to 6.0% by total volume.

I HEREBY DECLARE that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardise the validity of the application or any patent issued thereon.

Declared at Perth, Western Australia, on this 17th

Day of July 2002



VERONICA TOWNSEND



**IN THE MATTER OF**  
**United States of America**  
**Patent Application No.**  
**09/341,299 in the name of**  
**VERONICA ROBINSON**

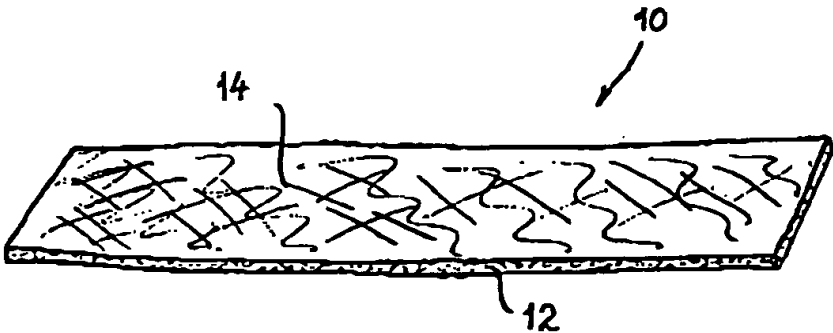
**EXHIBIT VT-1**

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(74) Agent: VAN WOLLINGEN, Rolf; Griffith Hack, 256 Adelaide Terrace, Perth, W.A. 6000 (AU).			
(54) Title: INSECT REPELLENT SUBSTRATE FOR HEADWEAR			
(57) Abstract			
<p>An insect repellent substrate (10) includes a fabric base material (12) made of felt which is impregnated with a repellent carrier composition (14). The carrier composition (14) includes a mixture of wax and a naturally occurring insect repellent such as pyrethrum oil. The carrier composition (14) may also include scented or aromatic oils such as citronella oil, rosemary oil, eucalyptus oil and neem oil. Strips of the fabric base material may be attached to headwear such as a headband or cap so that it is in contact with the wearer's hair or body. Active constituents of the carrier composition (14) provide effective treatment and prevention of headlice and other parasitic insects.</p>			
			

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INSECT REPELLENT SUBSTRATE FOR HEADWEARFIELD OF THE INVENTION

The present invention relates to an insect repellent substrate for repelling lice and the like insects, and relates particularly, though not exclusively, to headwear having a strip of said insect repellent substrate provided in connection therewith.

BACKGROUND TO THE INVENTION

Infestations of headlice and other parasitic insects are a perennial problem, particularly in schools where the lice are easily transmitted from child to child. Up to the present time there has been very little that one can do to prevent a child from being infected with headlice. Regular inspection to identify nits, which are the eggs of lice, is the only way to detect an infestation. Treatment includes combing the hair with a fine-toothed comb and/or washing the hair with a special shampoo which contains chemical substances designed to kill the lice and nits.

However, the shampoos that are currently available to treat headlice typically contain harsh synthetic chemicals such as permethrion, piperonyl butoxide and organophosphates which have been known to cause skin irritation. In the United Kingdom across the counter sales of shampoos containing organophosphates have recently been banned because of health concerns.

A further disadvantage with shampoos is that they only treat the hair at the time of use. They do not prevent the child from being re-infected when he/she returns to school.

SUMMARY OF THE INVENTION

The present invention was developed with a view to providing a lice repellent substrate suitable for headwear that can kill any lice present in the hair as well as preventing any further infestation of headlice. Although the present



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invention will be described primarily in relation to the treatment and prevention of lice infestation, it is to be understood that it also has application to the treatment and/or prevention of infestations of other parasitic insects such as fleas. Furthermore, although the insect repellent substrate is particularly suitable for headwear it may also have applications such as, for example, under a pillow at night.

According to one aspect of the present invention there is provided an insect repellent substrate for repelling lice and the like insects, the substrate comprising:

a piece of fabric base material impregnated with a repellent carrier composition, the carrier composition including a mixture of wax and an insect repellent whereby, in use, the carrier composition provides a controlled release of the insect repellent from the fabric base material.

Preferably the insect repellent is a naturally occurring compound. More preferably the insect repellent includes an extract from the pyrethrum flower. Most preferably the insect repellent is pyrethrum oil. Advantageously the carrier composition further includes one or more scented or aromatic oils. More preferably the carrier composition includes citronella oil and rosemary oil, which are also mild insect repellents. Preferably the carrier composition further includes neem oil, a naturally occurring insect repellent.

Typically the wax is a paraffin wax. Alternatively, the wax is beeswax obtained from honeycomb of the bee.

Preferably the carrier composition includes between 0.5% to 6.0% by volume of pyrethrum. Preferably the carrier composition includes between 0.5% to 4.0% citronella oil. Preferably the carrier composition includes between 0.5% to

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5.0% rosemary oil. Preferably the carrier composition includes between 3.0% to 9.0% neem oil. Preferably the carrier composition also includes between 0.5% to 6.0% eucalyptus oil.

- 5 Most preferably the carrier composition includes 30 mls of pyrethrum (50% w/w), 20 mls of citronella, 25 mls of rosemary and 45 mls of neem oil to every one litre of wax. Preferably the fabric base material is a felt material; most preferably a polyester/cotton blend felt material.
- 10 According to another aspect of the present invention there is provided a method of manufacturing an insect repellent substrate for repelling lice and the like insects, the method comprising the steps of:

- 15                   producing a repellent carrier composition by:  
                  heating a wax to a liquid state; and,  
                  mixing an insect repellent with the liquid  
                  wax;

- dipping a piece of fabric base material into the  
carrier composition whilst still in the liquid state for a  
20 sufficient length of time to allow the base material to  
absorb some of the carrier composition; and,

- allowing the impregnated piece of base material to  
cool so that the carrier composition solidifies on the base  
material whereby, in use, the carrier composition provides a  
25 controlled release of the insect repellent from the fabric  
base material.

- Preferably the insect repellent is a naturally occurring  
compound. More preferably the insect repellent includes an  
extract of the pyrethrum flower. Most preferably the insect  
30 repellent includes pyrethrum oil.

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Preferably the step of producing the repellent carrier composition further includes mixing one or more scented or aromatic oils with the liquid wax. Most preferably the scented oils include citronella oil and rosemary oil, which are also mild insect repellents.

Preferably the step of producing the carrier composition further includes mixing neem oil with the liquid wax.

According to a still further aspect of the present invention there is provided a garment having an insect repellent substrate for repelling lice and the like insects provided in connection therewith, the garment comprising:

a piece of fabric base material impregnated with a repellent carrier composition and attached to the garment in a manner that will ensure contact with the wearer's hair or body, the carrier composition including a mixture of wax and an insect repellent whereby, in use, the carrier composition provides a controlled release of the insect repellent from the fabric base material.

Typically the garment is an item of headwear such as, for example, a headband, hat or a cap. Alternatively the garment is an animal garment, such as, for example, a flea collar or a coat.

#### BRIEF DESCRIPTION OF THE DRAWINGS

In order to facilitate a better understanding of the nature of the invention a preferred embodiment of the insect repellent substrate will now be described in detail, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 illustrates a typical piece of insect repellent substrate in accordance with the invention;

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Figure 2 illustrates a headband having a strip of the insect repellent substrate of Figure 1 attached thereto;

Figure 3 illustrates a strip of insect repellent substrate in accordance with the invention having a strip of hook and loop fastener material fixed thereto; and,

Figure 4 illustrates a baseball cap having several strips of the insect repellent substrate illustrated in Figure 3 attached thereto.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

10 A preferred embodiment of the insect repellent substrate 10 as shown in Figure 1 comprises a piece of fabric base material 12 impregnated with a repellent carrier composition 14. Any suitable fabric base material may be employed. In the preferred embodiment the fabric base material is a felt material. A felt material made from a cotton and polyester blend was found to be most suitable. The fabric base material 12 should preferably be sufficiently absorbent to absorb the carrier composition 14 in a liquid state whilst retaining a degree of flexibility when impregnated with the carrier composition 14 in its solid state.

The repellent carrier composition 14 includes a mixture of wax and an insect repellent. In this embodiment the wax is a paraffin wax, although a naturally occurring wax such as beeswax obtained from honeycomb of the bee may also be used. The wax typically has a melting point of between 60°C to 65°C. The insect repellent employed in the carrier composition is preferably a naturally occurring compound. In the preferred embodiment the insect repellent includes an extract from the pyrethrum flower. Pyrethrins, the active constituent of pyrethrum flowers, are commonly used as a contact insecticide in fly-sprays. Pyrethrins are noted for the very rapid paralysis (knock-down) effect produced on flies, mosquitoes and other insects. Chemically modified

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pyrethrins, such as permethrin, have greater persistence and other commercially desirable properties. In the present invention, it is preferred to use the naturally occurring pyrethrum pale extract from pyrethrum flowers grown in Kenya. Typically, a diluted pyrethrum solution (50% w/w PBK) in an odourless isoparaffin solvent is used. Typically between 0.5% to 6.0% by volume of the pyrethrum oil solution is employed in the repellent carrier composition.

Advantageously the carrier composition 14 also includes one or more scented or aromatic oils. The addition of scented or aromatic oils is desirable in order to give the repellent carrier composition a pleasant aroma or scent. In addition, selected naturally occurring scented oils, such as citronella oil, rosemary oil and eucalyptus oil act as mild insect repellents and/or have other medicinal qualities. Thus, for example, rosemary oil is a mild insect repellent and is also thought to help to relieve headaches. Citronella oil also acts as an insect repellent and provides a fresh citrus aroma. It also helps to dry up congestion of the nasal passages. Eucalyptus oil is an antiseptic and eucalyptus vapours act to relieve congestion and breathing difficulties through the nasal passages.

The carrier composition preferably also includes neem oil extracted from the neem tree, which is a long-lasting insect repellent. Through extensive experimentation the inventor has found that the repellent carrier composition should preferably include a mixture of between 0.5% to 4.0% by volume citronella oil, 0.5% to 5.0% by volume rosemary oil and 3.0% to 9.0% neem oil together with 0.5% to 6.0% by volume of pyrethrum. These proportions were found to give the carrier composition sufficient active components to kill any lice or nits present, balanced with the repellent and aromatic properties of the constituents. A carrier composition which includes 30 mls of pyrethrum (50% w/w), 20 mls of citronella, 25 mls of rosemary and 45 mls of neem

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oil to every one litre of wax has been found to be particularly effective.

The wax in the carrier composition 14 provides a controlled release of the insect repellent from the fabric base material 12. In use, the base material 12 may be sewn on the inside of a garment in a manner that will ensure contact with the wearer's hair or body. For example, a strip 16 of the insect repellent substrate may be sewn to the inside of a headband 18 as shown in Figure 2. Strips of the impregnated felt material are cut to various sizes, ranging from 20 cm to 24 cm in length and from 2.5 cm to 5.0 cm in width, are sewn into stretchy cotton fabric to form the headband. Alternatively, strips of the impregnated felt may be sewn onto or adhered to an existing headband. When the headband 18 is worn on the wearer's head the strip 16 of insect repellent substrate will be in contact with the wearer's hair. The body temperature of the wearer will cause the wax in the substrate to soften allowing the active and aromatic constituents of the repellent carrier composition to be slowly released onto the wearer's hair and scalp. The controlled and continuous release of active constituents onto the wearer's hair and scalp not only kills any existing headlice and/or nits but also prevents any further infestation. In use, the strip 16 of insect repellent substrate has been found to provide effective treatment and prevention of headlice for approximately 6 to 8 weeks. After this length of time most of the active constituents of the repellent carrier composition are found to have leached out or evaporated from the fabric base material.

The insect repellent substrate 10 is relatively simple and inexpensive to manufacture. Typically, strips of the felt material are cut to size and dipped in a preheated (to approximately 70°C) wax solution containing the pyrethrum, citronella, rosemary and neem oil in the proportions noted above. The pyrethrum oil, citronella oil, rosemary oil and

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neem oil are simply added to the melted wax and readily mix with the wax in view of their oily composition. The felt strips absorb the wax solution after two or three minutes and then the impregnated felt strips are allowed to cool so that the wax solution solidifies on the felt fabric. After approximately two minutes of cooling the impregnated felt strips are ready to be attached to any suitable garment. The strips of insect repellent substrate may be attached to the garment using any appropriate fastening, for example, by sewing, an adhesive or using a hook and loop fastener system such as Velcro (registered trade mark).

Figure 3 illustrates a strip 20 of the insect repellent substrate having a strip of hook and loop fastener material 22 fixed thereto. One part of the hook and loop fastener is glued to the felt base material 10 and the other part can be attached to a garment by sewing or using a suitable self-adhesive. A baseball cap 24 is illustrated in Figure 4 (shown upside down) having several strips 20 of the insect repellent substrate attached to an inside surface of the cap where they will be in direct contact with the hair and/or scalp of the wearer. Similar strips of the insect repellent substrate can be attached to suitable animal garments, such as a flea collar worn by pet dogs and cats or on the bridle or protective coat worn by horses, sheep and other livestock. In this connection, the repellent properties of the active constituents of the repellent carrier composition have also been found to repel flies and mosquitoes.

A piece of the insect repellent substrate 10 may also be used as a "night breather" to reduce congestion and aid breathing during sleep. A carrier composition containing 30 mls by volume of citronella, 20 mls by volume of rosemary, 30 mls by volume of eucalyptus and 5 mls by volume of pyrethrum to every litre of wax, has been found particularly effective as a night breather. A piece of the insect repellent substrate approximately 20 cm x 14 cm is placed in the pillowcase or

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under the bottom sheet next to the mattress at the head of the bed. The night breather has also been found to relieve snoring in many cases. In this application, the insect repellent substrate 10 may also act to treat and prevent bed infestations of lice, fleas and dust mite.

Now that a preferred embodiment of the insect repellent substrate has been described in detail, it will be apparent that it has several advantages over the prior art methods of treating headlice, including but not limited to the following advantages:

- (a) it provides immediate treatment as well as long-lasting prevention;
- (b) the naturally occurring repellents employed are less hypo-allergenic and more environmentally friendly than the prior art synthetic compounds;
- (c) the scented or aromatic oils produces a fresh herbal aroma;
- (d) it is relatively simple and inexpensive to manufacture; and,
- (e) it is inconspicuous and can be easily attached to commonly worn headwear by children, who are particularly self-conscious about such things.

Numerous variations and modifications to the described embodiment will suggest themselves to persons skilled in the art, in addition to those already described, without departing from the basic inventive concepts. For example, other types of suitable fabric base material may be employed. All such variations and modifications are to be considered within the scope of the present invention, the nature of which is to be determined from the foregoing description and



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the appended claims.

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THE CLAIMS DEFINING THE PRESENT INVENTION ARE AS FOLLOWS:

1. An insect repellent substrate for repelling lice and the like insects, the substrate comprising:

5 a piece of fabric base material impregnated with a repellent carrier composition, the carrier composition including a mixture of wax and an insect repellent whereby, in use, the carrier composition provides a controlled release of the insect repellent from the fabric base material.

10 2. An insect repellent substrate as defined in claim 1, wherein the insect repellent is a naturally occurring compound.

3. An insect repellent substrate as defined in claim 2, wherein the insect repellent includes an extract from the pyrethrum flower.

15 4. An insect repellent substrate as defined in claim 3, wherein the insect repellent is a pyrethrum solution.

5. An insect repellent substrate as defined in claim 1, wherein the carrier composition further includes one or more scented or aromatic oils.

20 6. An insect repellent substrate as defined in claim 5, wherein the carrier composition includes citronella oil and rosemary oil, which are also mild insect repellents.

25 7. An insect repellent substrate as defined in claim 2, wherein the carrier composition further includes neem oil, a naturally occurring insect repellent.

8. An insect repellent substrate as defined in claim 1, wherein the wax is a paraffin wax.

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9. An insect repellent substrate as defined in claim 4, wherein the carrier composition includes between 0.5% to 6.0% by volume of pyrethrum.
- 5 10. An insect repellent substrate as defined in claim 9, wherein the carrier composition includes between 0.5% to 4.0% citronella oil.
11. An insect repellent substrate as defined in claim 10, wherein the carrier composition includes between 0.5% to 5.0% rosemary oil.
- 10 12. An insect repellent substrate as defined in claim 11, wherein the carrier composition includes between 3.0% to 9.0% neem oil.
- 15 13. An insect repellent substrate as defined in claim 12, wherein the carrier composition also includes between 0.5% to 6.0% eucalyptus oil.
14. An insect repellent substrate as defined in claim 13, wherein the carrier composition includes 30 mls of pyrethrum (50% w/w), 20 mls of citronella, 25 mls of rosemary and 45 mls of neem oil to every one litre of wax.
- 20 15. An insect repellent substrate as defined in claim 1, wherein the fabric base material is a felt material.
16. An insect repellent substrate as defined in claim 15, wherein the fabric base material is a polyester/cotton blend felt material.
- 25 17. A method of manufacturing an insect repellent substrate for repelling lice and the like insects, the method comprising the steps of:

producing a repellent carrier composition by:

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heating a wax to a liquid state; and,  
mixing an insect repellent with the liquid  
wax;

5 dipping a piece of fabric base material into the  
carrier composition whilst still in the liquid state for a  
sufficient length of time to allow the base material to  
absorb some of the carrier composition; and,

10 allowing the impregnated piece of base material to  
cool so that the carrier composition solidifies on the base  
material whereby, in use, the carrier composition provides a  
controlled release of the insect repellent from the fabric  
base material.

15 18. A method of manufacturing an insect repellent  
substrate as defined in claim 17, wherein the insect  
repellent is a naturally occurring compound.

19. A method of manufacturing an insect repellent  
substrate as defined in claim 18, wherein the insect  
repellent includes an extract of the pyrethrum flower.

20 20. A method of manufacturing an insect repellent  
substrate as defined in claim 19, wherein the insect  
repellent includes a pyrethrum solution.

21. A method of manufacturing an insect repellent  
substrate as defined in claim 17, wherein the step of  
producing the repellent carrier composition further includes  
25 mixing one or more scented or aromatic oils with the liquid  
wax.

22. A method of manufacturing an insect repellent  
substrate as defined in claim 21, wherein the scented oils  
include citronella oil and rosemary oil, which are also mild  
30 insect repellents.

- 14 -

23. A method of manufacturing an insect repellent substrate as defined in claim 17, wherein the step of producing the carrier composition further includes mixing neem oil with the liquid wax.

- 5 24. A garment having an insect repellent substrate for repelling lice and the like insects provided in connection therewith, the garment comprising:

10 a piece of fabric base material impregnated with a repellent carrier composition and attached to the garment in a manner that will ensure contact with the wearer's hair or body, the carrier composition including a mixture of wax and an insect repellent whereby, in use, the carrier composition provides a controlled release of the insect repellent from the fabric base material.

- 15 25. A garment having an insect repellent substrate as defined in claim 24, wherein the garment is an item of headwear.

1/2

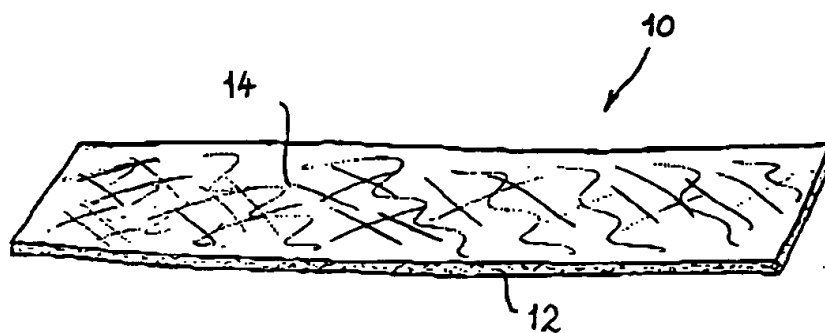


FIG. 1.

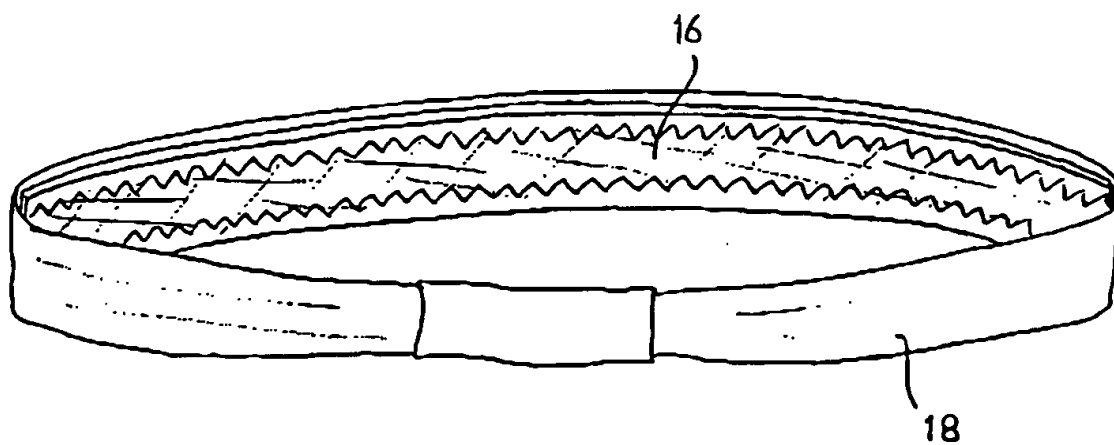


FIG. 2.

2/2

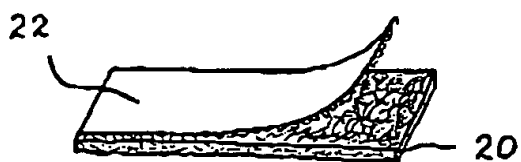


FIG. 3.

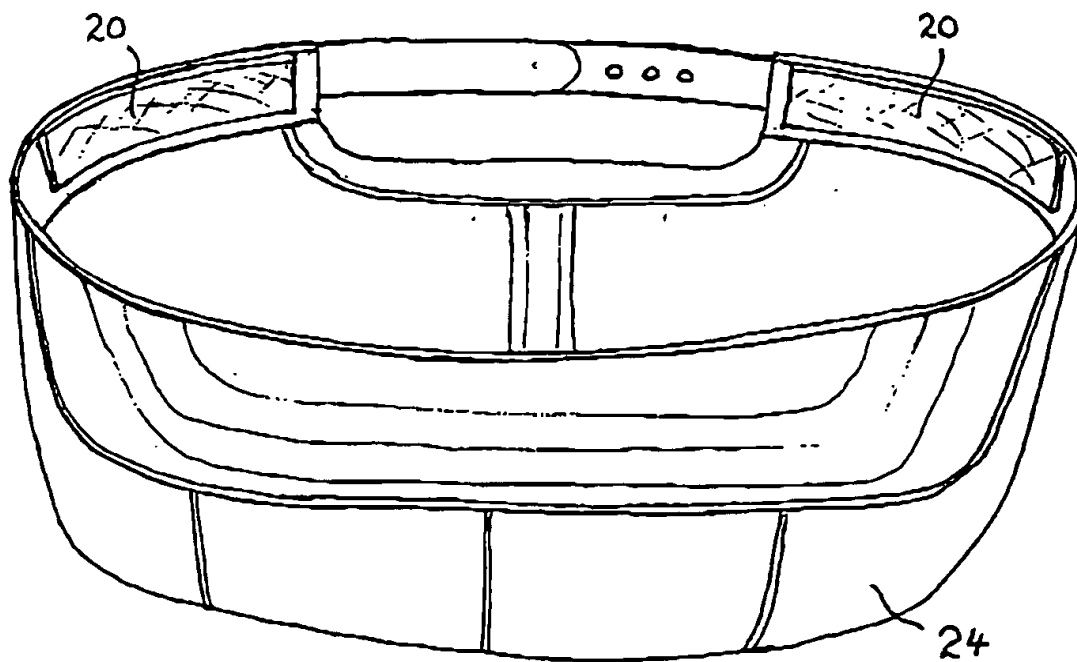


FIG. 4.

## INTERNATIONAL SEARCH REPORT

International Application No.  
PCT/AU 98/00010

**A. CLASSIFICATION OF SUBJECT MATTER**

Int Cl<sup>6</sup>: A45D 8/36, A41D 20/00

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
IPC A45D 8/36, A41D 20/00, A01K 27/00, A01K 13/00, A01M 1/20, C11C 5/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
AU: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
WPAT: (INSECT OR REPEL:) AND WAX:  
JAPIO: (INSECT OR REPEL:) AND WAX:

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y Y	Derwent Abstract Accession No. 84-303057/49, Class P14 JP 59-187722 A (EARTH SEIYAKU KK) 24 November 1984	1-4, 8-9, 15-20 5, 10, 13, 21, 24 24, 25
X Y	Derwent Abstract Accession No. 84-051553/09, Class P14P32 JP 59-008956 A (EARTH SEIYAKU KK) 18 January 1984	1-4, 8-9, 15-20, 24, 25 5, 10, 13, 21, 24

☒ Further documents are listed in the  
continuation of Box C

☐ See patent family annex

\* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search  
10 February 1998

Date of mailing of the international search report

25 FEB 1998

Name and mailing address of the ISA/AU  
AUSTRALIAN INDUSTRIAL PROPERTY ORGANISATION  
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WODEN ACT 2606  
AUSTRALIA Facsimile No.: (02) 6285 3929

Authorized officer

EDWARD MILLER

Telephone No.: (02) 6283 2188



## INTERNATIONAL SEARCH REPORT

International Application No.  
PCT/AU 98/00010

C (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y		24, 25
Y	US 5465689 A (WINDER) 14 November 1995 column 2 line 63 - column 3 line 22	5, 10, 13, 21, 24
Y	Derwent Abstract Accession No. 97-038432/04, Class P21 JP 08-296171 A (FUKUSUKE CORP) 12 November 1996	24, 25

**IN THE MATTER OF**  
**United States of America**  
**Patent Application No.**  
**09/341,299 in the name of**  
**VERONICA ROBINSON**

**EXHIBIT VT-2**

**IN THE MATTER OF**  
**United States of America**  
**Patent Application No.**  
**09/341,299 in the name of**  
**VERONICA ROBINSON**

**EXHIBIT VT-3**

natural  
HERBAL - LICE & NIT  
HEAD BAND

CONTAINS ARBOREAL OILS & SPECIAL PLANT EXTRACTS

-Sustains hair

Regular

**DIRECTIONS**

This product is designed to be worn in the hair during an outbreak of lice. Worn daily it naturally keeps lice away and imparts a fresh herbal aroma that children love, and stops re-infestation. Replace headband within 8 weeks or when effect diminishes. Keep item dry and store below 30°C.

FOR  
EXTERNAL USE  
ONLY



96325928000022

lice busters

Manufactured by:

lice busters INTERNATIONAL Pty Ltd,  
Unit 51 Townsend Street, Malaga, WA 6090

15-JUL-02 14:33  
TGA THERAPEUTIC  
GOODS  
ADMINISTRATION

SURVEILLANCE UNIT

PO Box 100 Woden ACT 2606 Australia  
Telephone: (02) 6232 8640 Facsimile: (02) 6232 8643



Ms Veronica Townsend.  
Licc Busters International Pty Ltd.  
Unit 5, 1 Townsend Street.  
Malaga. 6062.  
Western Australia.

Dear Ms Townsend.

I have received the new label that you forwarded to this office for our opinion. This label has been discussed with our advertising unit and we are satisfied that you are not breaching any Therapeutic Goods Legislation.

Hope this is of assistance to you.

Regards,

Margaret Lane.  
Principal Investigator.  
Surveillance Unit.  
17 September, 2001

**IN THE MATTER OF**  
**United States of America**  
**Patent Application No.**  
**09/341,299 in the name of**  
**VERONICA ROBINSON**

**EXHIBIT VT-4**



TRANBY PRIMARY SCHOOL  
99 Acton Avenue  
RIVERVALE WA 6103  
Telephone : 9277 1642  
Fax : 9277 9983

Principal : Lea Hadley

To whom it may concern:

Up to a short time ago, our school had been in the grips of a head lice plague for many months, with frequent reoccurring outbreaks causing the children, staff and parents much distress. Parents were becoming increasingly frustrated at having to pay out quite a lot of money to treat their children's hair, only to often have to repeat the process again and again to no avail. Not only was this a financial drain, but also an emotional one as the children were getting annoyed with the constant checking and treatments they were having to endure. From the school's point of view, the lice plague had presented the added problem of interrupting the children's educational routine when they had to be sent home from school until the infestation was treated.

In early May of this year a product called Lice Busters was brought to our attention and enquiries were made. To cut a long story short, we received samples of the headbands, cap inserts and treatment oil, along with detailed literature describing these products, and it wasn't long before the parents of Tranby Primary School were placing their orders. The feedback we have received from the parents using these products has been all positive, with many buying extras for friends and family in other parts of the country. The parents have been very happy with the results using the treatment oil, and the headbands and inserts are also apparently doing their job of prevention. Most of the parents are extremely pleased to have finally found a product that is working on ridding their children's hair of these pesty mites, plus the fact that it is not chemically based and the cost is so accomodating to even the tightest budget. Tranby Primary School is therefore happy to endorse a local product such as Lice Busters that is helping us to help our community with what has been an extremely annoying health problem.

L. J. Hadley

Lea Hadley.  
PRINCIPAL.

M. Pritchard

Michelle Pritchard.  
PARENT LIAISON OFFICER.  
8th June 1998.

**IN THE MATTER OF**  
**United States of America**  
**Patent Application No.**  
**09/341,299 in the name of**  
**VERONICA ROBINSON**

**EXHIBIT VT-5**





**SCARBOROUGH**  
B E A C H

P H A R M A C Y

ABN 45 866 238 338

12<sup>th</sup> March 2001

**TO WHOM IT MAY CONCERN**

Scarborough Beach Pharmacy has been dealing with Licebusters International for the past six months.

We initially heard of this company and it's Licebuster products through another retailer and have found these products to be an effective deterrent and treatment for the lice problem which is presently plaguing most schools around Australia.

I have no hesitation in recommending the company and its products to other interested parties.

Yours faithfully

**CHRIS WELLS**  
Pharmacist/Proprietor

Street Address  
97 Landsborough Ave  
Scarborough QLD 4020

Phone: (07) 3203 6230  
Fax: (07) 3203 5466  
Email: [jillwells@ozemail.com.au](mailto:jillwells@ozemail.com.au)

**IN THE MATTER OF**  
**United States of America**  
**Patent Application No.**  
**09/341,299 in the name of**  
**VERONICA ROBINSON**

**EXHIBIT VT-6**



# Ballajura Optometrists

☎ 9248-1700

Developmental Optometrists  
Contact Lens Consultants  
Optical Dispensers

9248-1722 fax

7<sup>th</sup> December 2001

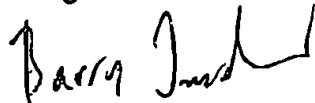
TO WHOM IT MAY CONCERN:

RE: Licebusters

After using a variety of lice treatment products on the market and having no success, I was finally put in touch with Licebusters in Malaga. My daughter was provided with an in-house treatment where the nits were removed and her hair cleaned. She was then provided with home treatment products and a scrunchie which she wears all the time.

I found the service and products provided by Licebusters to be of the highest professional nature and I would not hesitate to recommend their products and service.

Kind regards



BARRY TUCKER

**Barry Tucker Dip. Optom (S.A.) MBCO (U.K.)**

Provider Number 2201363J

P O Box 2605 Malaga 6944

Unit 1 - 110 Illawarra Crescent  
Cnr. Marangaroo Drive, Ballajura, 6066

**IN THE MATTER OF**  
**United States of America**  
**Patent Application No.**  
**09/341,299 in the name of**  
**VERONICA ROBINSON**

**EXHIBIT VT-7**

Q-Net Webmail

Veronica, this is the  
testimonial. Neville.

9249717



Q-Net Webmail  
Check your E-Mail Online!

Search

Choose a search engine

Metacrawler

Search

Control

Check E-Mail

Send E-Mail

Members

Help

Logout

From: "Andrew &amp; Gemma Banks"

Reply banksejgs@elsa.net.au

To: Subject: Testimonial

Date: Sat, 30 Sep 2000 20:53:24 +0800

Sent To

Previous Next Reply Forward Delete Close

This is a multi-part message in MIME format.

-----=\_NextPart\_000\_0009\_01C02B20.798E71C0

Content-Type: text/plain;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

Good morning,

I called in to your shop on Friday 29th September  
2000 to buy some more =  
Lice Busters scrunchies.

My husband and I have 4 young children, and have  
had intermittent =  
problems with head lice over the last 18 months.  
We have been using the =  
Robi-Comb religiously, but the problem is that we  
can send the children =  
to school, free of lice, on a Monday morning, and  
have them come home =  
with big fat adult lice that same afternoon. The  
problem is that there =  
are un-treated children at school. The time factor  
for the Robi-Comb was =  
a nuisance too - it took me at least an hour to do all  
four children - =  
plus extra time for my husband and myself as well.  
We needed a =  
preventative measure.

Then I heard about Lice Busters from a Mum at  
school (Janelle at Our =  
Lady's Assumption Primary School, Dianella - Ph.  
9249 7070). Thank God =20

I bought some scrunchies and cap inserts. Then a bottle of oil and some headbands. On the day I started to use the oil - I sprayed some oil onto the kids' hair and a hair brush - then brushed all their hair thoroughly, and put the long hair into "piggies" and plaits. I couldn't believe my eyes - lice were actually running out of their hair - and the annoying thing was that I had only 2 days before Robi-combed their hair. So we left the hair oily and tied up for 24 hours, and then shampooed and conditioned their hair.

Then I tipped the remainder of the 100ml bottle of Lice Busters oil into a 375ml bottle of detangling spray (a cheap supermarket one - South Pacific Reef Sea Spray Conditioner). Every morning and night when we do the kids hair - we shake the detangling spray bottle, and give the kids hair a thorough spray - especially the nape, and fringes - then brush and plait hair. The girls happily wear their scrunchies and headbands, and our son has cap inserts in his sandy hat.

It has been 4 weeks of this new regime - and not a single new lice! And the big benefit for me - being a busy Mum - is that I haven't had to change any of my habits. We were already using the detangling spray (less whining when I'm brushing hair in a hurry!) - and the initial spray of the concentrated oil to rid the infestation was no different to using the detangling spray. I'm just realising now - how the children are not scratching anymore.

On an ongoing basis - I feel the cost is going to be quite minimal. Your 100ml bottle of oil into a 375ml bottle of detangling spray is going to last a long time.

Thank you so much for a fabulous product. I wish you well,

To whom it may concern,

As a parent of a daughter who gets everything I was very interested to hear about Herbal headbands for the prevention of head lice. I cannot treat my daughter with chemical solutions so after having one month off school because of an outbreak I was delighted to try this new product. I am pleased to say that since my daughter has been wearing a Lice Busters Herbal Headband during school hours we have so far managed to avoid getting into the "Lice Cycle" through two outbreaks not only at her school but in her classroom!

I have no hesitation in recommending Lice Busters as a solution to an on going problem. I think it's just great that there is an alternative to chemical solutions.

from a very satisfied parent.

J. Elliott

3204 Albany Hwy  
Perth WA

Carole Winkler  
45 Kingfisher Ave  
Bellingham 98226  
10/11/01

Dear Lice Busters

Just a quick note  
of Thanks about your products.  
Since using the collars and oils  
on my pets (dog, cat & ferrets) My  
problems have now dissappeared.  
I have found not only do these  
products keep the fleas away  
but with my dog the flies do  
not annoy her anymore.

All my pets now  
are alot happier and my ferrets  
also no longer smell as much.

Yours sincerely  
Winkler



**IN THE MATTER OF**  
**United States of America**  
**Patent Application No.**  
**09/341,299 in the name of**  
**VERONICA ROBINSON**

**EXHIBIT VT-8**

**IN THE MATTER OF**  
**United States of America**  
**Patent Application No.**  
**09/341,299 in the name of**  
**VERONICA ROBINSON**

**EXHIBIT VT-9**



NIT FLICK: Pomaria Primary School pupils (from left) Maria (8), Lynae (7) and Alyce (8) sport nit-busting headbands

## Nitbusters give pupils head start in war on lice

THAT most dreaded of school turgies — head lice — is being sent packing by one Auckland primary school, whose pupils are wearing nit-busting headbands to keep the nits at bay.

Like most New Zealand schools, West Auckland's Pomaria Primary School has its share of head lice.

And when assistant principal Rio Kieley came across the Australian headband idea, she was quick to put it into practice.

Principal Ashley Maindonald said the headbands contained four natural oils — neem, rosemary, citronella and pyrethrum — and early indications showed they kept users' heads nit-free.

The headbands work their magic during class, with stu-

dents taking them off for the rest of the day.

Three pupils from one family trialled the headbands for eight weeks and Mr Maindonald said where the nits had previously been "very visible from a distance", the nitbands had killed off the bugs.

Another 10 children wore the headbands last week, with similar results. The school also has cap liners and will supply free drops of tea-tree oil for families to add to their shampoo.

The \$10 headbands will feature in the school's newsletter this week, and Mr Maindonald hopes most of the school's 395 students will buy them.

"I'm sure parents will be pretty keen on them," he said.

— MIRYANA ALEXANDER

## JP still acts despite sex offences

By MIRYANA ALEXANDER

A MAN convicted of sex offences is still practising as a JP in Auckland — five months after he was found guilty of incest charges of sexual assault.

The man was sentenced to an 18-month jail term in May and

crimes — punishable by imprisonment — such as statutory declarations and affidavits, and police search warrants.

A Justice Ministry spokesman said the official paperwork in cases in a court summons, is a

## Wife: It's farcical

HE pinned it apart, put it back together and then drove it to work every day for 14 years. He even drove it to his wedding — minus the fluff dice.

So when Michael Gillard's Ford Mark III Zephyr was stolen he vowed he would not rest until it was found.

Mr Gillard bought the 1966 model car 20 years ago as a 17-year-old. His pride and joy, he had taken it apart, put it back together and spouted it up.

"I wasn't good at reading and writing at school so I'd learn with my hands by taking things apart. The car was my baby," he said.

Mr Gillard was devastated when, 10 days ago, he returned from his building site in West Auckland to find his baby gone.

"I wouldn't believe it. I knew immediately it had been stolen. I

## Beloved Zephyr returned unscathed



PHIL DOYLE